

State of Iowa IT Project Request # 7

DOT Wireless Infrastructure

Department of Transportation
Information Technology Division

Jeff Sundholm

(515) 239-1543

Jeff.sundholm@dot.iowa.gov

April 30, 2013

Document Purpose: This document is to be completed when there is an identified need and tentative plan to initiate a project. Funding may not have been identified for the project yet (seeking IOWAccess funding, waiting on legislative decision or grant award). The Project Request is submitted to the TCC IPSC to gain support for the project and identify if there are existing applications or application components that can leveraged for the proposed project. This document is intended to answer high level questions about the project as details about total cost, timeframe and quantified benefits are not known as this document is expected to be completed during project planning. Submit this document to: xxxxx@iowa.gov TCC approval of this document results in the permission to proceed with project planning. Agency may be directed to complete the Project Execution Request before issuing an RFP or beginning internal development work.

Project Summary

Project Name: _____ **DOT Wireless Infrastructure**_____

Problem Statement: [*What is the need? How will this address that need?*]

The DOT is in need to replace its wireless infrastructure. The existing equipment has been in use since 2005 and has reached its end of life. This equipment is utilized to its maximum capacity with no expandability. The infrastructure has to be upgraded to accommodate expansion. The DOT has seen an increase in wireless access requests. Applications being developed by DOT are designed to run on mobile devices connected wirelessly. A new wireless infrastructure is needed to accommodate expansion and mobile applications.

The existing wireless infrastructure only supports 802.11 a/b/g

Project Description: [*What is the purpose of this project? What are the project goals?*]

The purpose of this project is to release an RFI and subsequent RFP to upgrade and expand the existing wireless infrastructure (Core and possibly access points) to accommodate added needs of wireless connections. Some goals are:

- Implement new hardware that is under a support agreement
- Support of all wireless speeds of 802.11 A/B/G/N and AC when it is released
- Expand wireless coverage to the whole DOT campus
- Expand wireless access to remote DOT locations statewide (approx. 130)
- Improved reliability of wireless service
- Improved guest network accommodation
- Improved security and identity management
- Increased device flexibility and management

What are your success criteria? [*What does success look like?*]

- Wireless access deployed DOT campus wide
- Wireless access deployed DOT statewide
- reliable robust secure wireless infrastructure
- self-registration for guest wireless
- reduction of DOT personnel interaction
- Eliminate our AirDefense overlay by using integrated rogue mitigation features
- increased data throughput and capacity
- identity management
- improved troubleshooting and diagnostic capabilities

Are you aware of any potential solutions? *[Describe Solutions]*

There are numerous wireless vendors. Cisco, Aerohive, Aruba, Meraki, Juniper, Enterasys, Motorola, and Avaya to name a few.

Benefits Summary

[Describe specific benefits and how these will be measured and reported.

Who are the customers of this project and how do they benefit?]

- DOT Campus Warehouse – improve existing network for wireless access and speed. Measured by wireless network analysis and network speed test.
- DOT statewide garage mechanics for truck diagnostic software – eliminated use of 100' network cable draped across the floor. The diagnostic software requires internet access to decipher computer codes from the trucks. Measured by wireless analysis and removal of 100' network cable.
- Guests access - utilize a self-registering and secure guest network eliminating DOT personnel to coordinate access. Measured by the lack of tickets and calls for guest access.
- Guest user access - controlled by time of day access as well as only being limited to access only the internet.
- Mobile users - utilize secure connection for numerous mobile applications. 511 road conditions, inventory systems, and resource management to name a few. Measured by monitoring monthly cellular bills for data usage.
- DOT employees - have a broader range of wireless coverage for mobility throughout the campus and the state. Measured by utilizing wireless devices in wide ranging DOT facilities.
- Rogue mitigation - we could shut down the AirDefense overlay. Measured by the actual removal of AirDefense and console monitoring, and reviewing logs/console for rogue access points and the mitigation taken.
- Improved data throughput and coverage with faster wireless speeds. Measured via wireless network analysis and testing the removal of an access point while wireless access is maintained.
- Log management - utilizing our log management system to migrate logs for additional automated reporting.

Project Impact: What is the impact if this project is not approved?

- Current equipment is unsupported and at risk of failure
- We have reached the capacity of the existing wireless infrastructure
- Guests access to the internet is limited and a manual process
- Reduced user productivity due to limited coverage and capacity
- DOT personnel safety (Mechanics)
- Potential increased cellular data charges (no cellular offload)

Project Technology: [*What technologies will be used in the project?*]

- Expand existing wireless coverage which includes overlap (mesh) of access point coverage within the DOT Ames campus
- Covers all current capabilities of 802.11 x
- 10/100/1000 throughput
- Network Access Control for the wireless network which can also be used on our wired network
- Policy creation based on user, device, location, and application
- Time of day/duration based access per guest user

Project Type: Maintenance _____ New ☒ Multi-phased _____

Maintenance is a work to be completed on an existing software or hardware asset. Examples: migrating all agency applications to MS SQL 2012; updating a specific application to be 508 compliant and improve accessibility;

New is a project that has a single phase. Examples: Rewrite a client server application into a web application; Replace an MS Access application with a client server application and SQL database; Create a new application to meet a new federal or state initiative.

Multi-phased is a new project with multiple phases or the subsequent phase of a project already implemented. Example: The project is intended in Phase 1 to implement the web application, Phase 2 will add payment and a mobile application and Phase 3 will expand application to another program area.

External/Internal Urgency: Are there any funding/legislative deadlines that impact this request? Are there organizational/staffing changes impacting the request?

Funding of approximately \$250,000 is allocated for this fiscal year (FY13)

Funding Summary

Estimated total Project Costs: [*Provide a high level estimate or range*]

Under 50k _____ 50 to 100k _____ 100-500k ☒ 500k to 2 million _____
2M to 5M _____ Over 5M _____ Unknown _____

Funding Source: [*Iowa Access, Pool, Federal Grant, etc.*]

Funding is DOT funds from Road Use Tax Fund

Project Sustainability [Describe the plan to support and maintain this project. What kind of on-going costs will there be during the lifetime of this asset?]

Annual maintenance and support funds are provided by DOT.

DOT Staff will install and maintain the new wireless solution

Risk Assessment

[Describe specific risks and how they will impact the project. How will these be mitigated?]

Access to the wireless network: Employees would be dual authenticated via Active Directory and radius with encryption. Guests accessing the network will require a temporary user id and password with access only to the internet. Guest internet access is via a separate dedicated circuit segregated from the DOT network

Unauthorized rogue access points will be contained by using integrated detection systems and rules based mitigation

Devices accessing the network will be identified via the systems identity component (type of device, DOT owned devices, etc...). Rules would control the type of access or actions needed to accommodate these devices.

Recommendations and Approvals

Authorize this IT procurement Yes X No ____

Alternatives suggested by the State CIO Yes ____ No X

Additional comments from the State CIO:

Recommendation is for approval by the TEC. We would like the RFI to be a broader scope if possible, subsequently approved by the State CIO.

DAS Director's action:

Authorize this IT procurement Yes X No ____

DAS Director's signature and date:

The above IT procurement concept approved by Director Carroll on 5/10/13

Comments: **None**